SERIAL NO. 3309

ONKYO® SERVICE MANUAL

Integrated Stereo Amplifier
MODEL A-8800

UD	120V AC, 60Hz
UG	220V AC, 50Hz
UQ	240V AC, 50Hz
UW, UWX	120V/220V AC, 50Hz/60Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PARTS NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

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ONKYO
AUDIO COMPONENTS

SPECIFICATIONS

Power Output:	100 watts per channel, min RMS. at 8 ohms, both channels driven from 20 Hz to 20 kHz, with no more than 0.008% Total harmonic distortion.	
Dynamic Power:	310 watts 2 homs, 220 watts 4 ohms	
Total Harmonic Distortion:	0.008% at rated power	
	0.008% at 1 watt output	
Intermodulation Distortion:	0.005% at rated power	
Damping Factor:	100 at 8 ohms	
Input Sensitivity	Phono (MM):	2.5 mV/50 kohms
Impedance:	Phono (MC):	160μV/220 ohms
	CD DIRECT:	150 mV/50 kohms
	TUNER:	150 mV/50 kohms
	Tape Play:	150 mV/50 kohms
	VCR Play:	150 mV/50 kohms
	VDP Play:	150 mV/50 kohms
Output Level/Impedance:	Tape Rec:	150 mV/1.5 kohms (Phono)
	Pre Out:	1 V/600 ohms
Phono Overload:	Phono (MM):	200 mV RMS. at 1 kHz, 0.015% THD.
Tone Control: (Vol–20 dB)	CONTRABASS:	+10/+20 dB (Muting: OFF/ON) at 20 Hz
	BASS:	±10 dB at 70 Hz
	TREBLE:	±8 dB at 20 kHz
High Cut:	6 kHz (6 dB/Octave) (TREBLE min.)	
Frequency Response:	CD, Tuner:	2-50,000 Hz (+0, −1 dB)
RIAA Deviation:	Phono (MM):	±0.3 dB, 20 Hz – 20 kHz
Signal to Noise Ratio (IHF-A):	Phono (MM):	94 dB (5.0 mV input)
	Phono (MC):	75 dB (0.5 mV input)
	CD:	107 dB
Muting (Vol – 20 dB):	−15 dB	

D/A CONVERTER SECTION

Coaxial Input:	0.5 Vp–p/75Ω
Output:	0.5 Vp–p/75Ω
Optical Input:	Standard TOSLINK Tape
Digital Sampling Frequency:	32,44.1, 48 kHz
Frequency Response:	2–20,000 Hz±0.2 dB
Total Harmonic Distortion:	0.0015% at 1 kHz
Signal to Noise Ratio: (IHF-A):	110 dB
Dynamic Range (IHF-A):	103 dB
Max. Output Level:	2V r.m.s.

GENERAL

Power Supply:	European models (except U.K.):	AC220 V, 50 Hz
	USA & Canadian models:	AC120 V, 60 Hz
	UK. & Australian models:	AC240 V, 50 Hz
	Worldwide models:	120 and 220V switchable, 50/60 Hz
Dimensions:	435 (W)×164 (H)×392 (D) mm 17-1/8″×6-7/16″×15-7/16″	
Weight:	14.5 kg, 32.0 lbs.	

Specifications and features are subject to change without notice.

PRECAUTIONS

1. Replacing the fuses

For continued protection against risk fire, replace only with same type and same rating fuse.

CIRCUIT NO.	PART NO.	DESCRIPTION
F921	252052	7A ST-6, Primary fuse (120V, 120V/220V model)
F922	252077 or	4A-SE-EAK Primary fuse (220V, 240V, 120V/220V model)
	252077CC	4A-SE-EAK Primary fuse (220V, 240V, 120V/220V model)

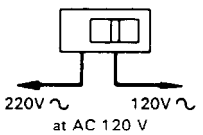
2. Insulation resistance mesurement (Only U.S.A. model)

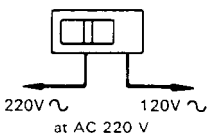
Connect the insulating-resistance tester between the plug of power supply cable and the terminal GND on the back panel.
Specifications: More than 10 MΩ at 500V.

3. Voltage Selector (Rear Panel)

Worldwide models are equipped with a voltae selector to conform with local power supplies. Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on. Voltage is changed by sliding the groove in the switch with a screwdriver to the right or left.

Confirm that the switch has been moved all the way to the right or left before turning the power switch on. Models without a voltage selector can only be used in areas where the power supply is the same as that of the unit.





ADJUSTMENT PROCEDURES

Adjustments and Checking the Protection Circuitry

1. Preparations

1) Place the unit on the workbench. (There should be about 15 mm of space between the base plate of the unit and the work surface.)
2) Set up the unit as follows.
   (1) No load
   (2) No signal
   (3) Volume turned all the way down
   (4) Speaker switch OFF
   (5) Power switch OFF

Note) Check the following points before making adjustments
   (1) The power switch should be OFF.
   (2) The interior of the unit should not be warm.
   (3) The DAC circuit board should be mounted correctly.

2. Idling current adjustment

1) Turn the power switch ON and allow the unit to warm up for about 10 minutes.
   (1) Adjust R531 (R532) so that the voltage at test point VCT-IID on the NAAF-3114 circuit board is 15mV±5mV.

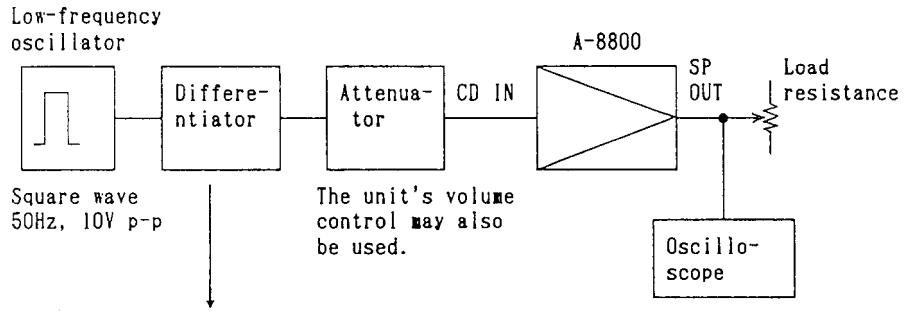
3. Check of operation of protection circuitry

1) Check of operation of protection relay
   (1) Confirm that the relay turns ON approximately 5 seconds after the power switch is turned ON.
   (2) The SOURCE DIRECT indicator LED should light at the same time.
   (3) The relay should turn OFF approximately 0.5 seconds after the power switch is turned OFF.
2) Check of DC detection and servo circuitry operation
   (1) Turn the power on with no load.
   (2) After the speaker relay turns ON, apply DC+200mV to the LINE input terminals. Confirm that the relay turns OFF.
   (3) Confirm that operation is the same as (2) above when an input of DC−200mV is applied.

Note) Under no circumstances connect a load or short the speaker terminals when performing the above test.

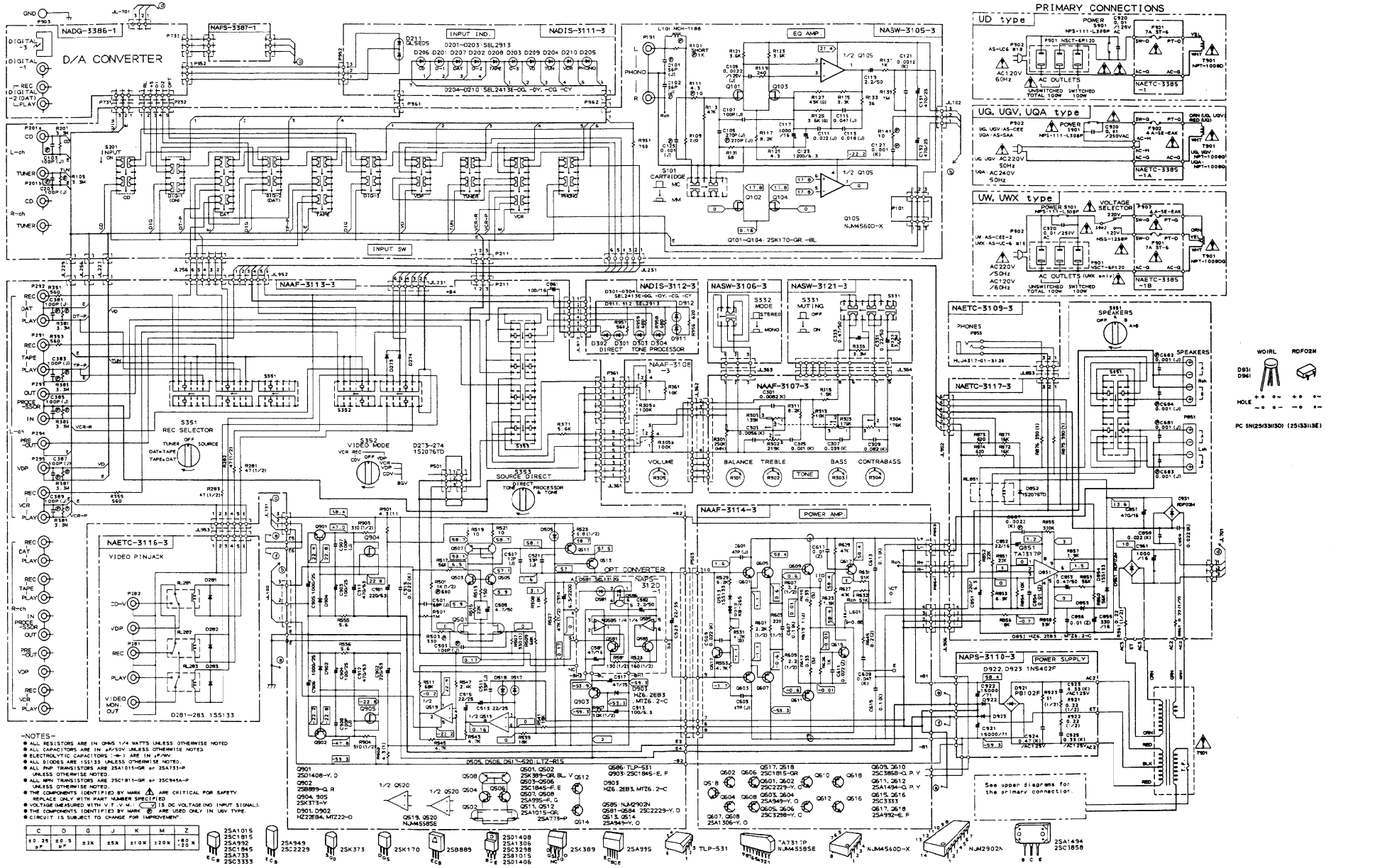
3) Signal input from the circuit illustrated below with no load.
   (1) Confirm that the speaker relay does not turn OFF even when a 2 ohm load is connected when a peak value of 35V p-p is output.
   (2) Next, confirm that when a 1 ohm load is connected the speaker relay switchse OFF and ON a couple of times and then stays OFF.

Note) The period before that relay stays OFF should not last for more than 1 minute.
Relay OFF status can be canceled by switching the power OFF.

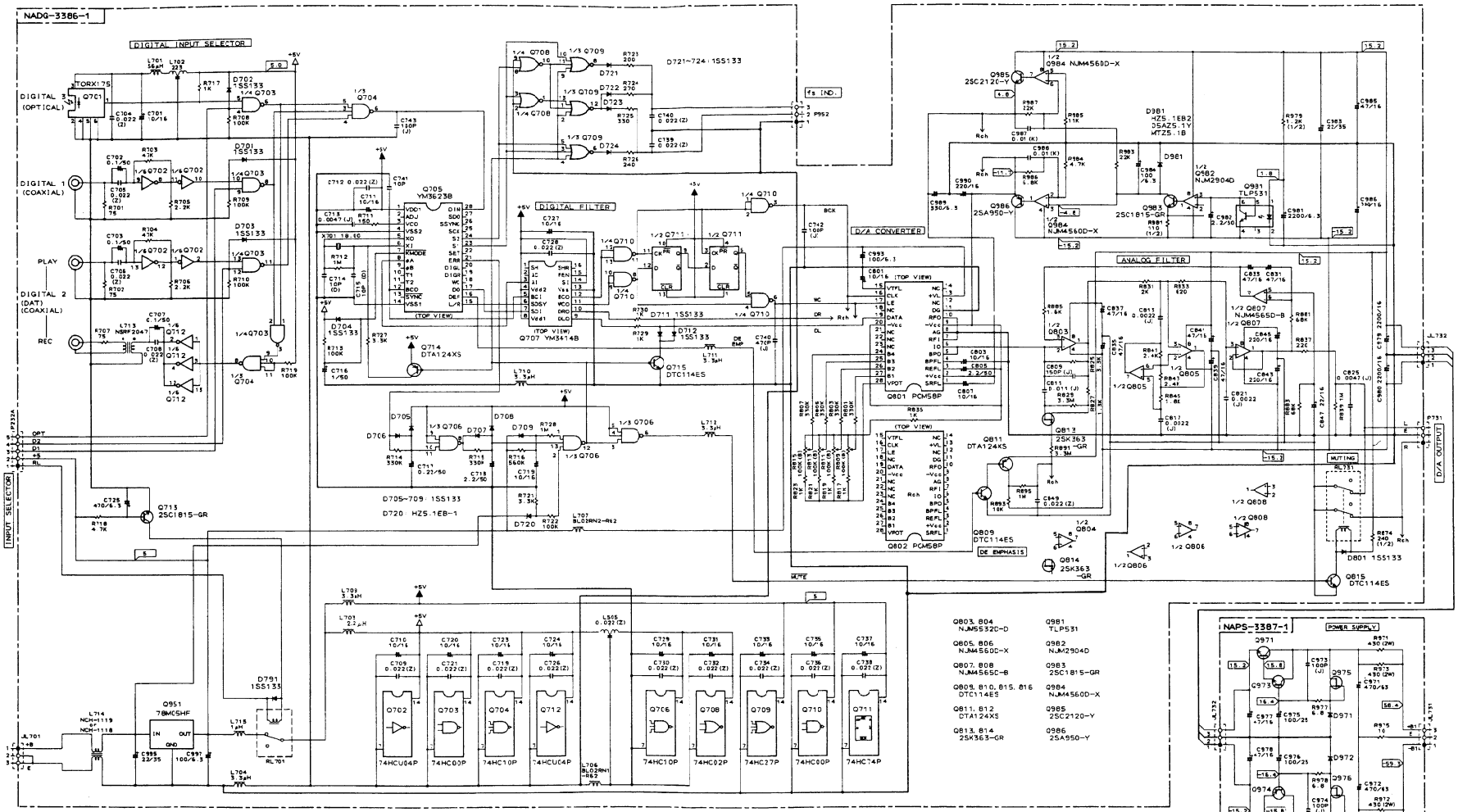


NOTE) Semi-fixed resistors enclosed in parentheses ( ) are for the right channel.

SCHEMATIC DIAGRAM (1/2)



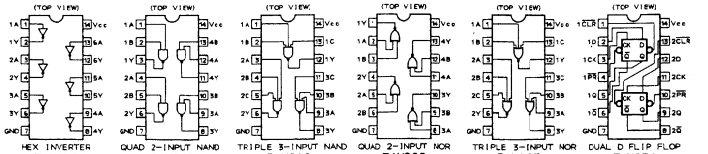
SCHEMATIC DIAGRAM (2/2)

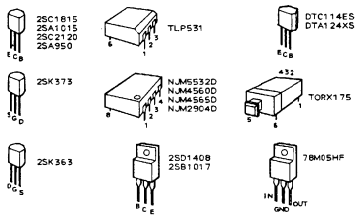


C	D	G	J	K	M	Z
±0.25 pF	±0.5 pF	±2%	±5%	±10%	±20%	+80% −20%

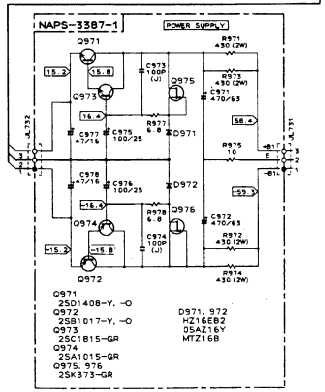
-NOTES-

- ALL RESISTORS ARE IN OHMS 1/4 WATTS UNLESS OTHERWISE NOTED
- ALL CAPACITORS ARE IN μF/50V UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS (◇) ARE IN μF/6V.
- ALL DIODES ARE 1SS133 UNLESS OTHERWISE NOTED.
- ALL PNP TRANSISTORS ARE 2SA1015-GR or 2SA733-P UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE 2SC1815-GR or 2SC945A-P UNLESS OTHERWISE NOTED.
- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED
- VOLTAGE MEASURED WITH V.T.V.M. (▽) IS DC VOLTAGE (NO INPUT SIGNAL).
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.


HEX INVERTER 74HCU04
QUAD 2-INPUT NAND 74HC00
TRIPLE 3-INPUT NAND 74HC10
QUAD 2-INPUT NOR 74HC02
TRIPLE 3-INPUT NOR 74HC27
DUAL D FLIP FLOP 74HC74

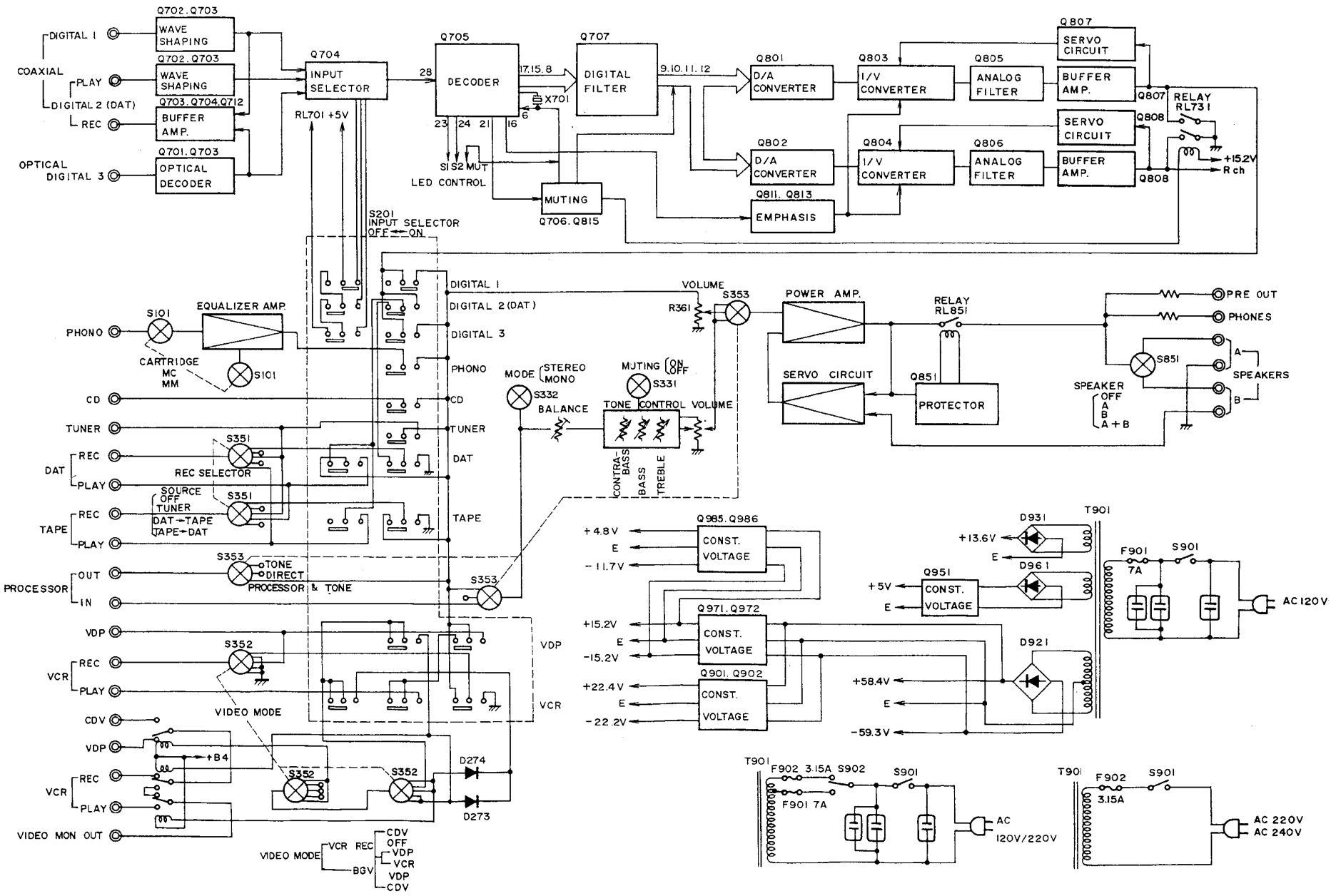


Q803, 804 NJM5532D-D	Q981 TLP531
Q805, 806 NJM4560D-X	Q982 NJM2904D
Q807, 808 NJM4565C-B	Q983 2SC1815-GR
Q809, 810, 815, 816 DTC114ES	Q984 NJM4560D-X
Q811, 812 DTA124XS	Q985 2SC2120-Y
Q813, 814 2SK363-GR	Q986 2SA950-Y

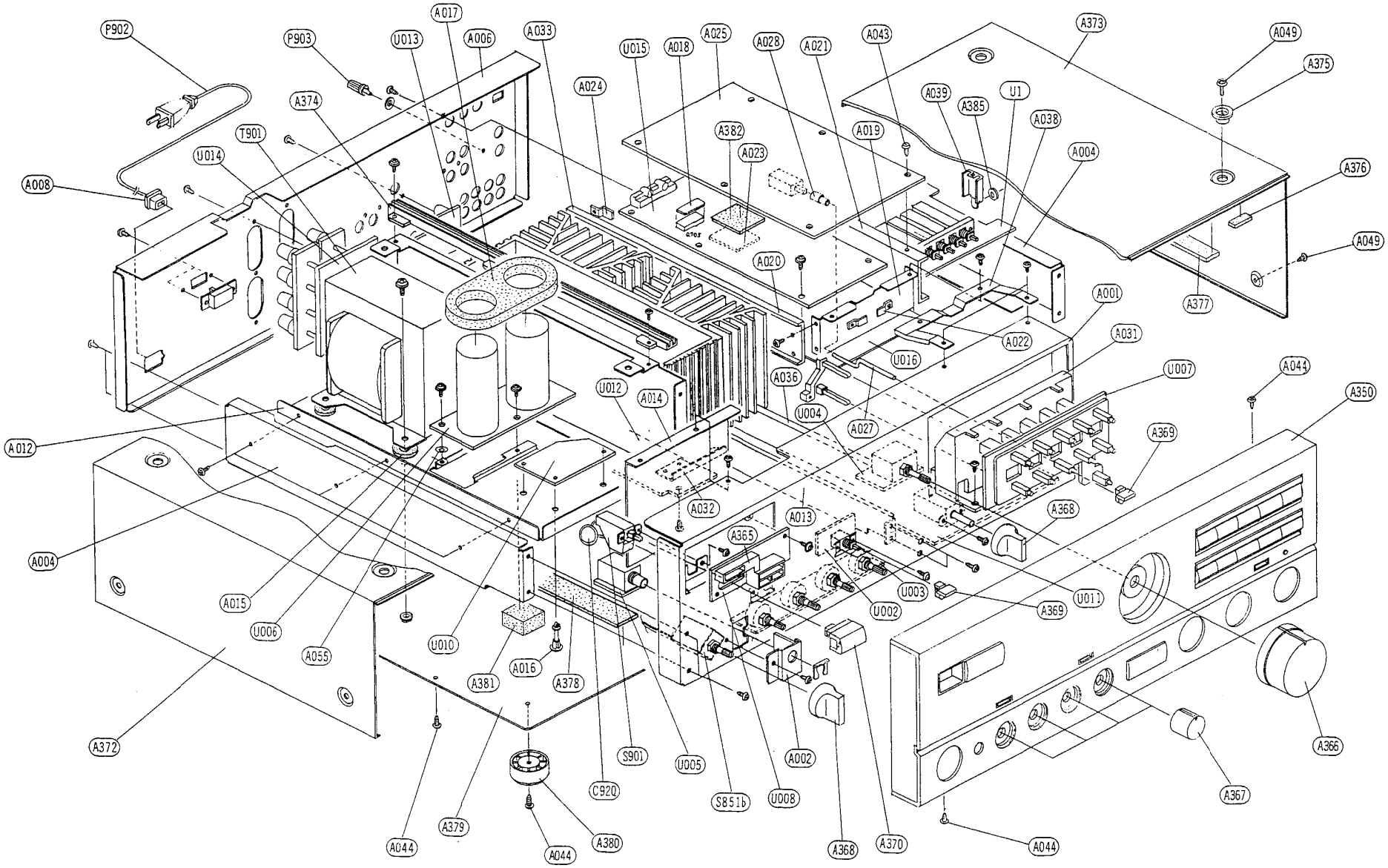


ONKYO CORPORATION

BLOCK DIAGRAM



CHASSIS-EXPLODED VIEW



4. DAC block adjustment

1) Confirmation of fs display

(1) Input a digital signal to one of the DIGITAL input terminals (1–3).

(2) The indicator LED should light as follows according to the sampling frequency of the input signal.

32kHz ..... orange
44.1kHz ..... green
48kHz ..... red

2) Distortion adjustment

(1) Preparations

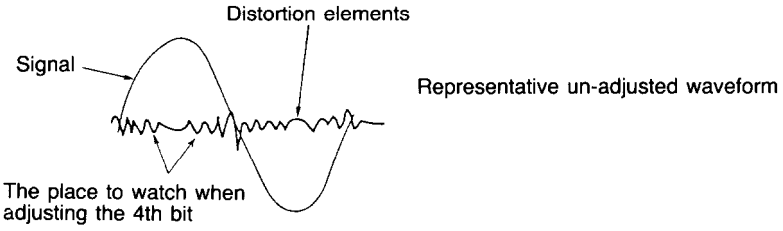
- Connect the digital output terminal of a suitable equipped CD player to the DIGITAL 1 digital input terminal of the A-8800.
- Connect a distortion meter to the analog output of circuit board NADC-3386 or to the unit's analog REC OUT terminal.
- Input the distortion meter signal output and the distortion output to dual-phenomenon oscilloscope.

(2) Turn power ON to the unit.

(3) Play track 2 of the test disc (YEDS-18).

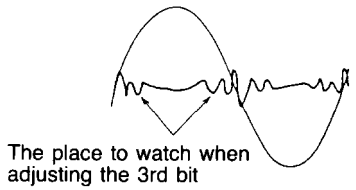
(4) Adjusting the 4th bit.

Adjust semi-fixed resistor R815 (R-816) so that the non-continuous portion (difference in level) of the distortion elements shown at right is as small as possible.



(5) Adjusting the 3rd bit.

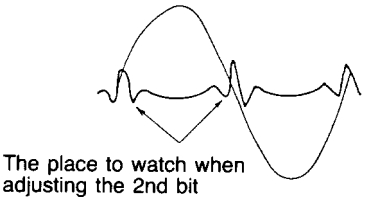
As with (3) above, adjust semi-fixed resistor R813 (R814) so that the non-continuous portion (difference in level) of the distortion elements is as small as possible.



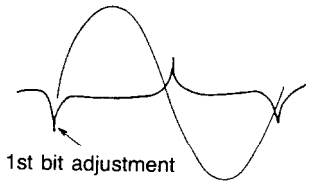
(6) Adjusting the 2nd bit.

As above, adjust semi-fixed resistor R811 (R812) so that the non-continuous portion (difference in level) of the distortion elements is as small as possible.

Note) It does not matter is up to this point the level of overall distortion is high.



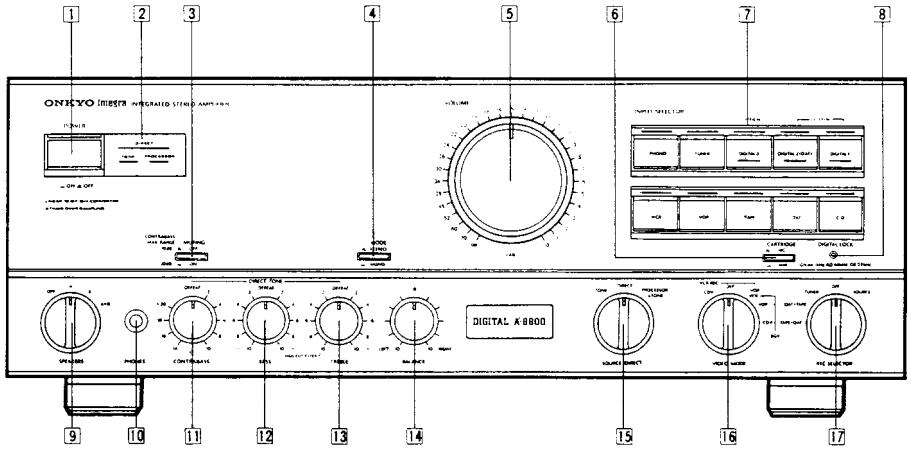
(7) Adjusting the 2nd bit.
Adjust semi-fixed resister R809 (R810) so that the non-continuous portion of the final remaining distortion waveform is as small as possible.



(8) Repeat steps (4) – (7) above to fine adjust to optimum settings.

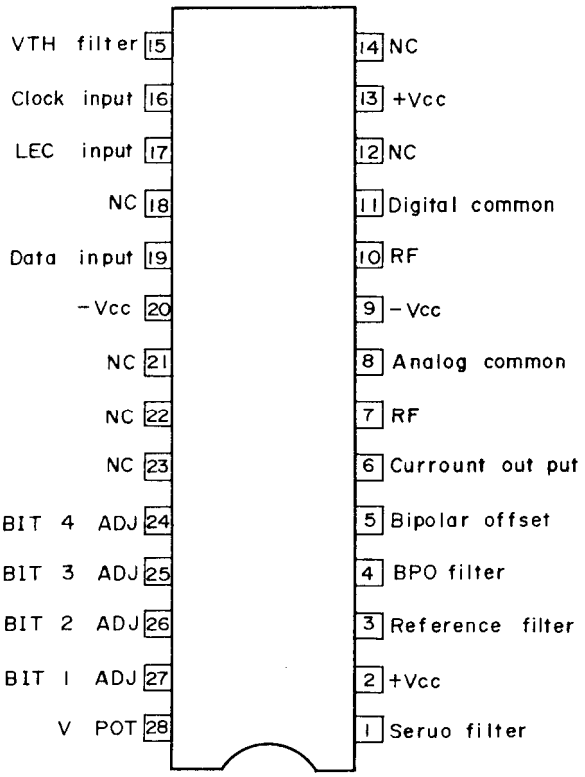
Note) The distortion meter must be accurate to 0.001% or better and possess a distortion output terminal.

FRONT PANEL FACILITIES

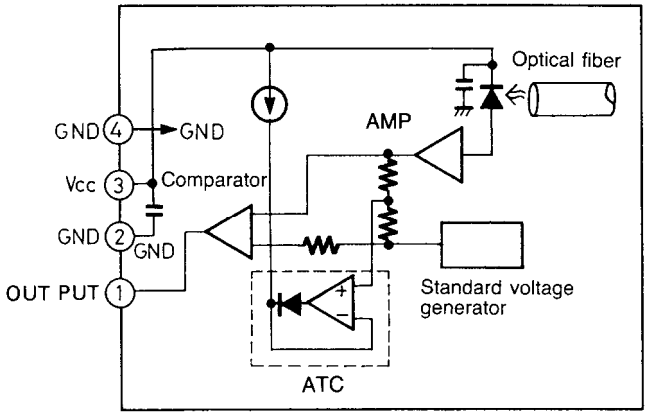


1. Power switch (POWER)
2. Operation indicator (DIRECT/TONE/PROCESSOR)
3. Muting switch (MUTING)
4. Mode selector switch (MODE)
   STEREO, MONO
5. Volume control (VOLUME)
6. Cartridge selector switch (CARTRIDGE)
   MC, MM
7. Input selector buttons and Indicators (INPUT SELECTOR)
   DIGITAL 1, DIGITAL 2 (DAT), DIGITAL 3
   PHONO, TUNER, VCR, VDP, TAPE, DAT, CD
8. Digital lock indicator (DIGITAL LOCK)
9. Speaker selector switch (SPEAKERS)
   OFF, A, B, A+B
10. Headphone jack (PHONES)
11. Contrabass control (CONTRABASS)
12. Bass control (BASS)
13. Treble control (TREBLE)
14. Balance control (BALANCE)
15. Source direct switch (SOURCE DIRECT)
    TONE, DIRECT, PROCESSOR & TONE
16. Video mode switch (VIDEO MODE)
    VCR REC···CDV, OFF, VDP/VCR
    VDP/VCR, VDP, CDV···BGV
17. Recording source selector switch (REC SELECTOR)
    TAPE ▶ DAT, DAT ▶ TAPE, TUNER, OFF, SOURCE

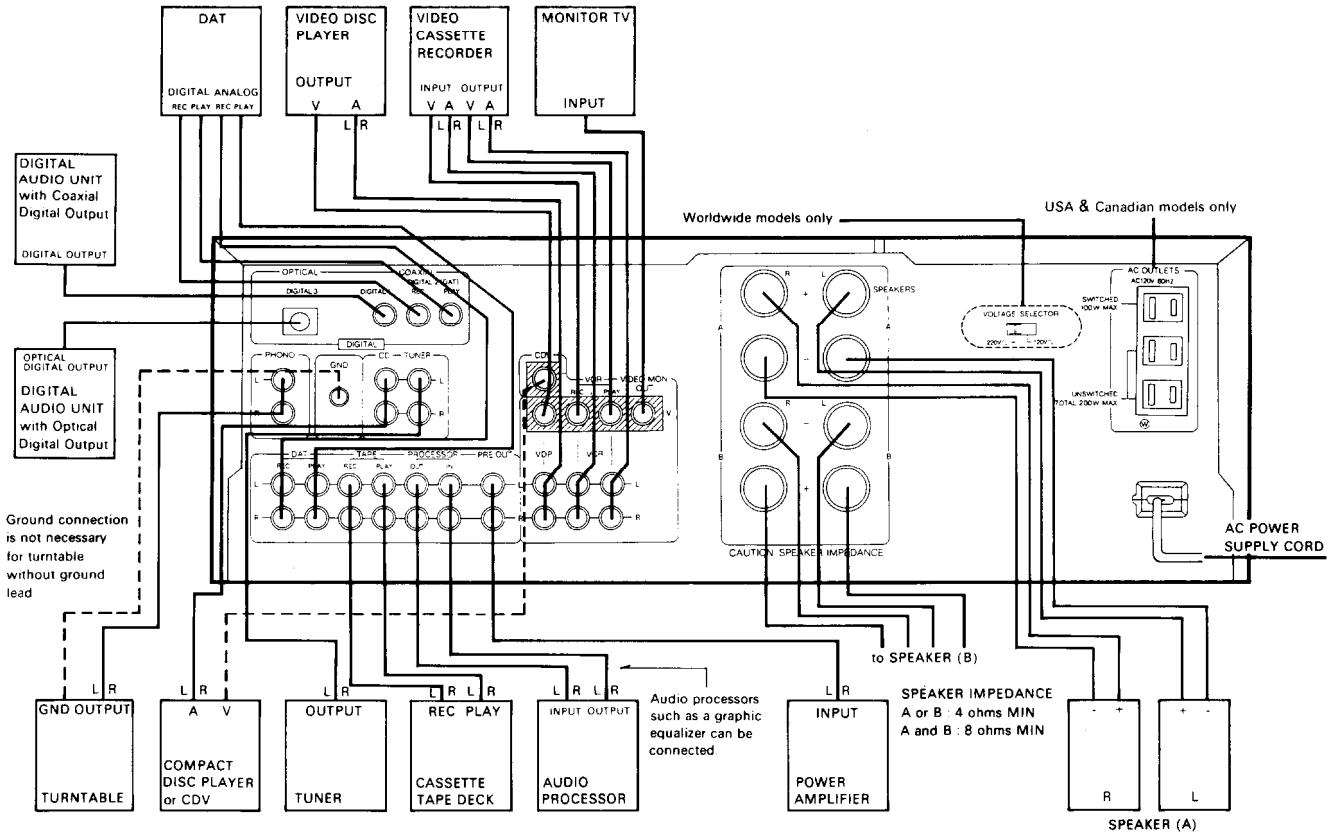
PCM58P (D/A converter)



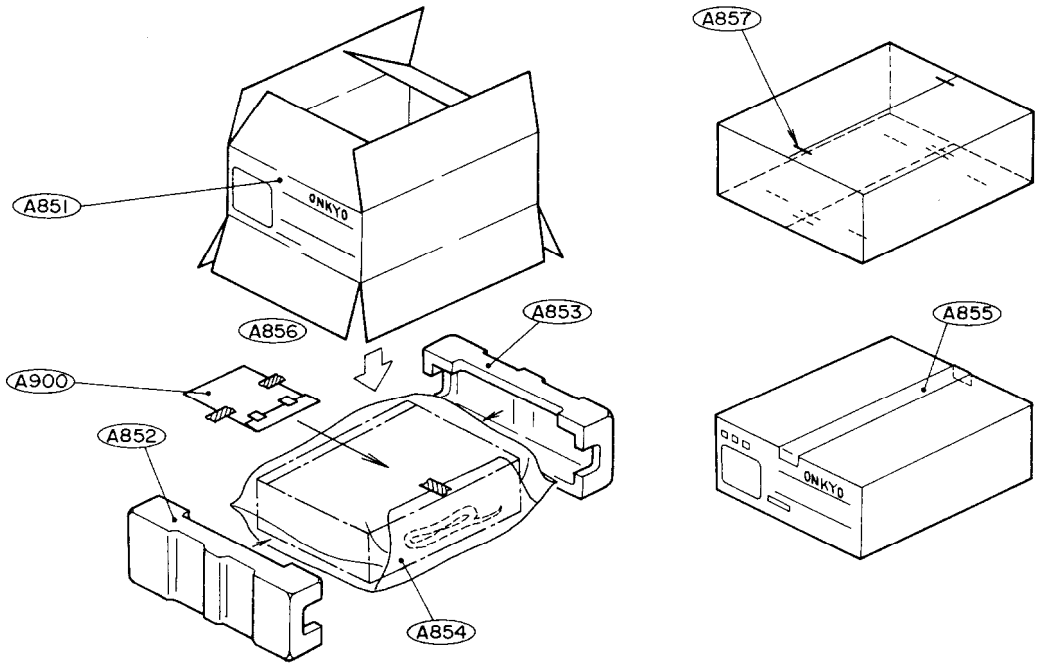
TORX175 (Optical receiver)



SYSTEM CONNECTIONS



PACKING PROCEDURES



REF. NO.	PART NO.	DESCRIPTION
A851	29051788	MASTER CARTON BOX
A852	29091202	PAD, LEFT
A853	29091203	PAD, RIGHT
A854	29095108-1	SHEET, 1000×600
A855	260012	DAMPLON TAPE, W50
A856	261504	PAPER TAPE
A857	282301	SEALING HOOK
	29360778	LABEL (FLASH) [N]
	29360863	LABEL (CAUTION) [B]
A900		ACCESSARY BAG
	29341325	INSTRUCTION MANUAL [D] [N]
	29341326	INSTRUCTION MANUAL [G] [W] [A] [B]
	29365019	WARRANTYCARD [N]
	29365022	WARRANTYCARD [B]
	29358002F	SERVICE STATION LIST [N]
	25055018	CONVERSION PLUG CK-K-1 [W]
	29100006A	POLY BAG 350×250

NOTE
[D]: ONLY 120V MODEL
[G]: ONLY 120V MODEL
[W]: ONLY 120V/220V MODEL
[N]: ONLY U.S.A. MODEL
[A]: ONLY AUSTRALIAN MODEL
[B]: ONLY BRITISH MODEL

MILITARY MARKET MODEL

REF. NO.	PART NO.	DESCRIPTION
A851	29051796	MASTER CARTON BOX
A852	29091288	PAD, LEFT
A853	29091289	PAD, RIGHT
	29091290	PAD (2 Piece)
A854	29095108-1	SHEET, 1000×600
A855	260012	DAMPLON TAPE, W50
A856	261504	PAPER TAPE
A857	282301	SEALING HOOK
	28330072	CAP, AC SOCKET
	29360626-1	LABEL (FUSE)
	29360815	LABEL (120)
	29380084	CAUTION (120)
A900	—	ACCESSARY BAG
	29341325	INSTRUCTION MANUAL
	29365021	WARRANTY CARD
	29358002F	SERVICE STATION LIST
	29100006A	POLY BAG 350×250
	25055251	CONVERSION PLUG, CV-CP
	—	SIDE BOARD
	28185335	SIDE BOARD ASS'Y
	(28185333)	SIDE BOARD ASS'Y, LEFT
	(28185331)	SIDE BOARD, LEFT
	(28140864)	CUSHION
	(28185334)	SIDE BOARD ASS'Y, RIGHT
	(28185332)	SIDE BOARD, RIGHT
	(28140864)	CUSHION
	(29051798)	CARTON BOX
	(29095550)	PROTECTION SHEET (R)
	(29095551)	PROTECTION SHEET (S)
	(29095539)	PROTECTION SHEET, 580×400
	(29095408)	PROTECTION SHEET, 450×400
	(29100026)	POLY-VINYL BAG
	(29341018-1)	INSTRUCTION MANUAL (SIDE BOARD)
	(836440303)	TAP-TIGHT, 4×12BCBC
	(870086)	SPECIAL WASHER, 4×128BCBC
	(262005)	CELLOPHANE TAPE

CHASSIS-EXPLODED VIEW-PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
A001	27110382	FRONT BRACKET
A002	27141199	BRACKET (HP)
A004	27115230C	SIDE BRACKET
A006	27121174A	BACK PANEL [D]
A006	27121175A	BACK PANEL [G]
A006	27121177A	BACK PANEL [W]
A006	27121190A	BACK PANEL [X]
A006	27121191A	BACK PANEL [A] [B]
A008	27300750	BUSHING (CORD)
A012	27130548B	BRACKET (PT)
A013	27130502C	BRACKET (H)
A014	27150259	SHIELD PLATE
A015	27270213	SPACKER (PT)
A016	27190657	HOLDER
A017	28140882	CUSHION (DUMPER)
A018	28400454	STABILIZER (DAC)
A019	27130549A	BRACKET (D)
A020	27225087C	SHIELD CASE (DL)
A021	27225088C	SHIELD CASE (DR)
A022	27141282	BRACKET (O)
A023	28140808	CUSHION
A024	27141229A	BRACKET (O)
A025	27262485	PLATE (D)
A027	27260237C	SHAFT
A028	28320135	JOINT
A030	29360626-1	LABEL (Fuse) (D)
A031	27273086E	JOINT ASS'Y
A032	27141161A	BRACKET (HF)
A033	21160230	HEATSINK
A035	27141162A	BRACKET (HB)
A036	27130503D	BRACKET (PC)
A038	27141163A	BRACKET (D)
A039	27141235	BRACKET (E)
A043	82143006	PAN HEAD SCREW, 3P+6FNBC
A044	834480088	TAP-TIGHT SCREW, 3TTS+8BBC
A049	838440089	TAP-TIGHT SCREW, 4TTB+8CBC
A053	87313006	TOOTHED WASHER, M-3B
A055	27270273	SPACER
A350	1A115121	FRONT PANEL
A365	28199174	FILM
A366	28323171	KNOB (VOL)
A367	28323123	KNOB (TONE)
A368	28323173	KNOB (SP)
A369	28323174	KNOB (PUSH)
A370	28323175	KNOB (POW)
A371	28323176	KNOB (CAP)
A372	28184409	TOP COVER (L)
A373	28184410	TOP COVER (R)
A374	27273090	JOINT (COVER)
A375	27265155A	WASHER (COVER)
A376	28140020	CUSHION
A377	28140695	CUSHION
A378	28140761	CUSHION
A379	27170251A	BOTTOM BOARD
A380	27175153	LEG ASS'Y
A381	28140810	CUSHION
A382	28140807	CUSHION
A385	27175011C	LEG
Q609, Q610	2201873 or	TRANSISTOR, 2SC3858-O or
	2201876 or	TRANSISTOR, 2SC3858-P or
	2201874	TRANSISTOR, 25SC3858-Y
Q611, Q612	2201863 or	TRANSISTOR, 2SA1494-O or
	2201866 or	TRANSISTOR, 2SA1494-P or
	2201864	TRANSISTOR, 2SA1494-Y
⚠ T901	2300364B	POWER TRANSFORMER, NPT-1008D [D]
⚠ T901	2300365B	POWER TRANSFORMER, NPT-1008G [G]
⚠ T901	2300366A	POWER TRANSFORMER, NPT-1008DG [W] [X]
⚠ T901	2300377B	POWER TRANSFORMER, NPT-1008Q [A] [B]
⚠ C920	350065A	0.01μF, AC400V/125V, CAPACITOR (1S)
⚠ C920a	27300601	COVER (CAPACITOR), SB-1925
⚠ P901	25050293	AC SOCKET, NSCT-6P120 [D] [X]
⚠ P902	253123 or	POWER SUPPLY CABLE, AS-UC-6 #18 or [D] [X]
	253136 or	POWER SUPPLY CABLE, AS-UC-6 #18 or [D] [X]
	253140 or	POWER SUPPLY CABLE, AS-UC-6 #18 or [D] [X]
	253146 or	POWER SUPPLY CABLE, AS-UC-6 #18 [D] [X]
⚠ P902	253148 or	POWER SUPPLY CABLE, AS-CEE or [G]
	253150	POWER SUPPLY CABLE, AS-CEE [G]
⚠ P902	253092-1A	POWER SUPPLY CABLE, AS-CEE-2 [W]
⚠ P902	253118	POWER SUPPLY CABLE, AS-SAA [A]
⚠ P902	728320 or	POWER SUPPLY CABLE, 2-0.75BS16 BLK/GRY [B]
	728328	POWER SUPPLY CABLE, 2-0.75BS16 BLK/GRY [B]
P903	25060044	GROUND TERMINAL
⚠ F921	252052	7A ST-6 [D]
⚠ F922	252077 or	4A-SE-EAK or [G] [W] [X] [A] [B]
	252077CC	4A-SE-EAK [G] [W] [X] [A] [B]
⚠ F901	25035345A	POWER SWITCH, NPS-111-L308P
S851b	25030294	REMOTE SWITCH, OPERATION SECTION
⚠ S902	25065123	SLIDE SWITCH, NSS-1258P [W] [X]
U001	1A115505-3	NASW-3105-3, INPUT SWITCH & EQUALIZER CIRCUIT PC BOARD ASS'Y
U002	1A115506-3	NASW-3106-3, MODE SWITCH CIRCUIT PC BOARD ASS'Y
U003	1A115507-3	NAAF-3107-3, TONE CONTROL CIRCUIT PC BOARD ASS'Y
U004	1A115508-3	NAAF-3108-3, VOLUME CONTROL CIRCUIT PC BOARD ASS'Y
U005	1A115509-3	NAETC-3109-3, HEAD PHONE JACK PC BOARD ASS'Y
U006	1A115510-3	NAPS-3110-3, POWER SUPPLY CIRCUIT PC BOARD ASS'Y
U007	1A115511-3	NADIS-3111-3, INPUT LED CIRCUIT PC BOARD ASS'Y
U008	1A115512-3	NADIS-3112-3, DISPLAY LED CIRCUIT PC BOARD ASS'Y
U009	1A115521-3	NASW-3121-3, MUTING SWITCH CIRCUIT PC BOARD ASS'Y

U010	1A115585-3	NAETC-3385-3, FUSE CIRCUIT PC BOARD ASS'Y [D]
U010	1A115585-3A	NAETC-3385-3A, FUSE CIRCUIT PC BOARD ASS'Y [G] [A] [B]
U010	1A115585-3B	NAETC-3385-3B, FUSE CIRCUIT PC BOARD ASS'Y [W]
U010	1A115585-3C	NAETC-3385-3C, FUSE CIRCUIT PC BOARD ASS'Y [X]
U011	1A115513-3	NAAF-3113-3, POWER AMPLIFIER (I) PC BOARD ASS'Y
U012	1A115514-3	NAAF-3114-3, POWER AMPLIFIER (II) PC BOARD ASS'Y
U013	1A115516-3	NAETC-3116-3, VIDEO TERMINAL PC BOARD ASS'Y
U014	1A115517-3	NAETC-3117-3, SPEAKER & PROTECTOR CIRCUIT PC BOARD ASS'Y
U015	1A115586-1	NADG-3386-1, DIGITAL CIRCUIT PC BOARD ASS'Y
U016	1A115587-1	NAPS-3387-1, DIGITAL POWER SUPPLY CIRCUIT PC BOARD ASS'Y

NOTE [D]: ONLY 120V MODEL
[G]: ONLY 220V MODEL
[W]: ONLY 120V/220V MODEL
[X]: ONLY MILITARY MARKET MODEL
[A]: ONLY AUSTRALIAN MODEL
[B]: ONLY BRITISH MODEL

NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PARTS NUMBER SPECIFIED.

PRINTED CIRCUIT BOARD PARTS LIST

INPUT SWITCH & EQUALIZER CIRCUIT PC BOARD (NASW-3105-3) – PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	IC	
Q105	222570	NJM4560X
	Transistors	
Q101~104	2212185 or 2212186	2SK170GR or 2SK170BL
	Capacitors	
C105, C106	372122714	270 pF, 50V, Styrene
C107, C108	372121014	100 pF, 50V, Styrene
C109, C110	373302224	2200 pF, 12V, Film (PP)
C111, C112	379122234	0.022 μF, 50V, Film (DEW)
C113, C114	379121834	0.018 μF, 50V, Film (DEW)
C115, C116	379124734	0.047 μF, 50V, Film (DEW)
C117, C124	354741029	1000 μF, 16V, Elect.
C118, C123	391221227	1200 μF, 6.3V, Elect. (MUSE)
C119, C120	391280227	2.2 μF, 50V, Elect. (MUSE)
C121, C122	379121225	1200 pF, 50V, Film (DEW)
C131, C132	354754719	470 μF, 25V, Elect.
	Switches	
S101	25035583	NPS-142-L545
S201	25035572	NPS-742-362-L534
	Sockets	
P101	2000764	NSAS-6P720
P223	2000557	NSAS-6P513
P224	2000960	NSAS-8P912
P232	2000776	NSAS-10P732
P961	2000665	NSAS-8P621
P962	2000782	NSAS-14P782
	Jumper socket	
JL102	25050267	NSCT-3P95
JL255	25050272	NSCT-8P100
JL256	25050270	NSCT-6P98
JL227	25050271	NSCT-7P99
JL229	25050272	NSCT-8P100
JL231	25050270	NSCT-6P98
	Terminals	
P191, P202	25045182	NPJ-2PDBL72 (PH)
P201	25045233	NPJ-2PDBL107 (CD)
	Plug	
P211a	25055133	NPLG-3P117

MODE SWITCH CIRCUIT PC BOARD (NASW-3106-3) – PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Switch	
S332	25035584	NPS-122-L546

TONE CONTROL CIRCUIT PC BOARD (NAAF-3107-3) – PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C301, C302	379128225	8200 pF, 50V, Film (DEW)
C303, C304	379125625	5600 pF, 50V, Film (DEW)
C305, C306	379121025	1000 pF, 50V, Film (DEW)
C307, C308	379123935	0.039 μF, 50V, Film (DEW)
C309, C310	379128235	0.082 μF, 50V, Film (DEW)

	Resistors	
R301	5148107	N16RGMC250KMN25, Variable
R302	5148108	N16RGM11C219K25, Variable
R303	5144001	N16RQM11C139K176K25, Variable
R304	5148113A	N16RGM11C176K25, Variable

VOLUME CONTROL CIRCUIT PC BOARD (NAAF-3108-3) – PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Resistor	
R305	5104212	N27DQ100KT100KT25 Variable
	Plug	
P361a	25055137	NPLG-7P121
	Jumper socket	
JL361	25050272	NSCT-8P100

HEAD PHONE JACK PC BOARD (NAETC-3109-3) – PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Stereo jack	
P853	25045229	HLJ4317-01-3120

POWER SUPPLY CIRCUIT PC BOARD (NAPS-3110-3) – PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Diodes	
D921	22380014	PB102F
D922, D923	22380003	1N5402F
	Capacitors	
C921, C922	3500101A	15000 μF, 71V, Elect
C923, C925	375103345	0.33 μF, 125V, Elect. (ME)
C924	375104745	0.47 μF, 125V, Elect. (ME)
	Resistors	
R921, R922	442522294	0.22Ω, 1/2W, Metal oxide film
R923	442525104	51Ω, 1/2W, Metal oxide film
	Plate	
	27301035	Bus line

INPUT LED CIRCUIT PC BOARD (NADIS-3111-3) – PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Diodes	
D201~D203	225142CX1 or	SEL2913K-CX1 or
	225142CX2 or	SEL2913K-CX2 or
	225142DX1 or	SEL2913K-DX1 or
	225142DX2	SEL2913K-DX2, LED
D204~D210	225137DG or	SEL2413E-DG or
	225137DY or	SEL2413E-DY or
	225137CG or	SEL2413E-CG or
	225137CY	SEL2413E-CY, LED
D211	225248	GL5ED5, LED
	Sockets	
P951	2000918	NSAS-6P871
	Plugs	
P961	25055185	NPLG-4P169
P962	25055188	NPLG-7P172
	Holder	
	27190573A	(LED-11)

DISPLAY LED CIRCUIT PC BOARD (NADIS-3112-3) – PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Diodes	
D911	225142DX2	SEL2913K-DX2
D912	225142DX2	SEL2913K-DX2
D301~D304	225137DG or	SEL2413E-DG or
	225137DY or	SEL2413E-DY or
	225137CG or	SEL2413E-CG or
	225137CY	SEL2413E-CY
	Holder	
	27190574	(LED-4)

POWER AMPLIFIER (I) PC BOARD (NAAF-3113-3) – PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q519, Q520	222942	NJM4558SE
	Transistors	
Q501, Q502	2212805 or	2SK389-GR or
	2212806 or	2SK389-BL or
	2212807	2SK389-V
Q503~Q506	2211733 or	2SC1845-E or
	2211732	2SC1845-F
Q507, Q508	2211515 or	2SA995-F or
	2211516	2SA995-G
Q511, Q512	2211455 or	2SA1015-GR or
	2210803	2SA733-P
Q513, Q514	2211354 or	2SA949-Y or
	2211353	2SA949-O
Q901	2201444 or	2SD1408-Y or
	2201443	2SD1408-O
Q902	2201502 or	2SB889-Q or
	2201503	2SB889-R
Q903	2211733 or	2SC1845-E or
	2211732	2SC1845-F
Q904, Q905	2213335	2SK373-GR
	Diodes	
D505, D506	225232	LTZ-R15, LED
D517~D520		
D273, D274	223145	1S2076TD
D902, D904	224652204 or	HZ22E-B4 or
	224152204 or	05AZ22R or
	224452204	MTZ22-D, Zener
D903	224650623 or	HZ6.2E-B3 or
	224150623 or	05AZ6.2Z or
	224450623	MTZ6.2-C, Zener
	Capacitors	
C501, C502	372126804	68 pF, 50V, Styrene
C505, C506	354780479	4.7 μF, 50V, Elect.
C511, C512	372123304	33 pF, 50V, Styrene
C513~C516	391252207	22 μFF, 25V, Elect. (MUSE)
C521, C522	372123304	33 pF, 50V, Styrene
C523, C524	354762209	22 μF, 35V, Elect.
C861	354741019	100 μF, 16V, Elect.
C901, C902	354772219	220 μF, 63V, Elect.
C903, C904	354751019	100 μF, 25V, Elect.
C905, C906	354751029	1000 μF, 25V, Elect.

C911, C912	354774719	470 μF, 63V, Elect.
C913	354721019	100 μF, 6.3V, Elect.
C914	354722229	2200 μF, 6.3V, Elect.
C917	354764709	47 μF, 35V, Elect.
	Resistors	
R281~R283	442524704	47Ω, 1/2W, Metal oxide film
R507, R508	441623314	330Ω, 1W, Metal oxide film
R523, R524	442520684	6.8Ω, 1/2W, Metal oxide film
R527, R528	442524734	47kΩ, 1/2W, Metal oxide film
R901, R902	441620434	4.3Ω, 1W, Metal oxide film
R903	442523314	330Ω, 1/2W, Metal oxide film
R904	442525114	510Ω, 1/2W, Metal oxide film
R907	442521034	10kΩ, 1/2W, Metal oxide film
	Switches	
S351	25030219	NRSM-165-25SS, Rotary
S352	25030292	NRSM-145-25SS, Rotary
S353	25030302	NRSM-183-25SS, Rotary
	Terminals	
P291	25045165	NPJ-4PDBL59, (TAPE)
P292, P293	25045165	NPJ-4PDBL59, (DAT, PRC)
P294	25045182	NPJ-2PDBL72, (PREOUT)
P295	25045166	NPJ-6PDL60, (VIDEO)
	Socket ass'y	
P211	2000560	NSAS-6P516
P361	2000752	NSAS-14P708
P501	2000556	NSAS-6P512
P503	2000750	NSAS-20P706
	Jumper socket	
JL912, JL952 JL953	25050270	NSCT-6P98

POWER AMPLIFIER (II) PC BOARD (NAAF-3114-3) – PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors	
Q517, Q518	2211255 or 2210746	2SC1815-GR or 2SC945A-P
Q601, Q602	2211634 or 2211633	2SC2229-Y or 2SC2229-O
Q603, Q604	2211354 or 2211353	2SA949-Y or 2SA949-O
Q605, Q606	2201644 or 2201643	2SC3298-Y or 2SC3298-O
Q607, Q608	2201634 or 2201633	2SA1306-Y or 2SA1306-O
Q615, Q616	2212560	2SC3333
Q617, Q618	2211793 or 2211792	2SA992-E or 2SA992-F
	Diodes	
D513, D514	223163	1SS133
D515, D516	4000120	KB-265, Varistor
	Coils	
L601, L602	231134	S-0.8E
	Capacitors	
C509, C510	379122235	0.022 μF, 50V, Film (DEW)
C607, C608	379121045	0.1 μF, 50V, Film (DEW)
C609, C610	379124735	0.047 μF, 50V, Film (DEW)
C613~C616	379121045	0.1 μF, 50V, Film (DEW)
	Resistors	
R531, R532	5210062	N06HR4.7KBD, Semi-fixed
R601, R602	442522224	2.2KΩ, 1/2W, Metal oxide film
R603, R604	442522214	220Ω, 1/2W, Metal oxide film
R607~R610	442520224	2.2Ω, 1/2W, Metal oxide film
R615~R618	4000078	0.33Ω, 5W, Metal plate
R619, R620	441720104	1Ω, 2W, Metal oxide film
R645, R646	441720824	8.2Ω, 2W, Metal oxide film
	Jumper socket	
JL906	25050268	NSCT-4P96
	Plate	
	27300877	Bus line

VIDEO TERMINAL PC BOARD (NAETC-3116-3) – PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Diodes	
D281~D283	223163	1SS133
	Terminals	
P281	25045225	NPJ-3PDBL101
P282	25045181	NPJ-2PDBL71
	Relays	
RL281~RL283	25065298	NRL-1P1A-DC12-40

SPEAKER & PROTECTOR CIRCUIT PC BOARD (NAETC-3117-3) – PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	IC	
Q851	222584	TA7317P
	Diodes	
D852	223145	1S2076TD
D853	224650623 or 224150623 or 224450623	HZ6.2EB3 or 05AZ6.2Z or MTZ6.2C, Zener
D854	223163	1SS133
D931, D961	22380013	RDF02M
	Capacitors	
C851	354722219	220 μF, 6.3V, Elect.
C852	354742209	22 μF, 16V, Elect.
C853	354784799	0.47 μF, 50V, Elect.
C855	354743319	330 μF, 16V, Elect.
C857	354744719	470 μF, 16V, Elect.
C858, C859	379122235	0.022 μF, 50V, Film (DEW)
C961	354741029	1000 μF, 16V, Elect.
	Resistors	
R861, R961	442522294	0.22Ω, 1/2W, Metal oxide film
R875, R876	441623914	390Ω, 1W, Metal oxide film
	Terminal	
P851	25060124	NTM-8PDMN057
	Relay	
RL851	25065316	NRL-2P7A-DC12-43
	Switch	
S851a	25065361	NSS-44137
	Sockets	
P853	2000794	NSAS-4P750
P854	2000795	NSAS-4P751
	Jumper socket	
JL853	25050280	NSCT-3P108

MUTING SWITCH CIRCUIT PC BOARD (NASW-3121-3) – PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C331, C332	354782299	0.22 μF, 50V, Elect.

C333, C334	354784799	0.47 μF, 50V, Elect.
	Switch	
S331	25035573	NPS-162-L535

FUSE CIRCUIT PC BOARD (NAETC-3385-3, NAETC-3385-3A, NAETC-3385-3B, NAETC-3385-3C) – PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Fuse holder	
F921a	250113	S-N5051 [D] [W] [X]
F922a	25050065	YSH403T [G] [A] [B] [W] [X]
	Terminal	
	25060092	NTM-1S33 [G] [A] [B] [W]

DIGITAL CIRCUIT PC BOARD (NADC-3386-1) – PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q701	24120017	TORX175
Q702, Q712	222755	TC74HCU04P
Q703, Q710	222740005	74HC00P
Q704, Q706	22240112	TC74HC10P
Q705	22240113	YM3623B
Q707	22240176	YM3414
Q708	222740025	74HC02P
C709	222740275	74HC27P
Q711	222740745	74HC74P
Q801, Q802	22240184	PCM58P
Q803, Q804	222902	NJM5532DD
Q805, Q806, Q984	222570	NJM4560D-X
Q807, Q808	22240201	NJM4565D-B
Q951	222780055	78M05HF
Q982	22240134	NJM2904D
	Transistors	
Q713	2211255	2SC1815-GR
Q714, Q811	2213300	DTA124XS
Q715, Q809, Q815	2213290	DTC114ES
Q813, Q814	2212524	2SK363-GR
Q981	226007	TLP531, Photo coupler
Q983	2211256	2SC1815-BL
Q985	2211164 or	2SC2120-Y or
	2211163	2SC2120-O
Q986	2211504 or	2SA950-Y or
	2211503	2SA950-O
	Diodes	
D701~D709	223163	1SS133
D712, D713		
D721~D724		
D791, D801		
D720	224650511 or	HZ5.1E-B1 or
	224150511 or	05AZ5.1X
	224450511	MTZ5.1A, Zener
D981	224650512 or	HZ5.1E-B2 or
	224150512 or	0.5AZ5.1Y
	224450512	MTZ5.1B, Zener
	Coils	
L701	231029	NCH-1068
L702, L705	231054	NCH-5095, Filter
L703	233359	NCH-2163
L704	233360	NCH-2164
L709~L712		
L706	230905	BL02RN1-R62, FR core
L707	230906	BL02RN2-R62, FR core
L713	232143	NSRF2047, RF coil
L714	231069A or	NCH-1119 or
	231066	NCH-1118
L715	233357	NCH-2161
	Osc. element	
X701	3010144	CSA18.00MX040
	Capacitors	
C701, C710, C711	354741009	10 μF, 16V, Elect.
C719, C720, C723		
C724, C727, C729		
C731, C733, C735		
C737		
C801~C804		
C702, C703, C707	354781099	0.1 μF, 50V, Elect.
C713	379124724	4700 pF, 50V, Film (DEW)
C716	354780109	1 μF, 50V, Elect.
C717	354782299	0.22 μF, 50V, Elect.
C718	354780229	2.2 μF, 50V, Elect.
C805~C808		
C725	354724719	470 μF, 6.3V, Elect.
C809, C810	372121514	150 pF, 50V, Styrene
C811, C812	379121134	0.011 μF, 50V, Film (DEW)
C813, C814, C817	379122224	2200 pF, 50V, Film (DEW)
C818, C821, C822		
C825, C826	372124724	4700 pF, 50V, Styrene
C831~C834	391244707	47 μF, 16V, Elect. (MUSE)
C835~C842	354744709	47 μF, 16V, Elect.
C843~C846	354742219	220 μF, 16V, Elect.
C847, C848	391242207	22 μF, 16V, Elect. (MUSE)
C979, C980	354742229	2200 μF, 16V, Elect.
C981	354722229	2200 μF, 6.3V, Elect.
C982	354780229	2.2 μF, 50V, Elect.
C983, C995	354762209	22 μF, 35V, Elect.
C984	354721019	100 μF, 6.3V, Elect.
C985	354744709	47 μF, 16V, Elect.
C986	354723319	330 μF, 16V, Elect.
C987, C988	379121035	0.01 μF, 50V, Film (DEW)
C989	354723319	330 μF, 6.3V, Elect.
C990, C993, C997	354721019	100 μF, 6.3V, Elect.
C991, C992	354742219	220 μF, 16V, Elect.
C993		
	Resistors	
R809~R816	5210070	N06HR100KBD, Semi-fixed
R894	442522414	240Ω, 1/2W, Metal oxide film
R979	442521224	1.2kΩ, 1/2W, Metal oxide film
R981	442521114	110Ω, 1/2, Metal oxide film
	Relays	
RL701	25065345	NRL-1P1A-DC05-49
RL731	25065282	NRL-2P1.25A-DC12-39
	Terminals	
P711	25045224	NPJ-2PDOR100
P712	25045251	NPJ-1PDOR123
	Jumper socket	
JL701	25050267	NSCT-3P-95
	Plugs	
P731	25055133	NPLG-3P-117
P232a	25055186	NPLG-5P-170
P952	25055184	NPLG-3P-168
	Plate	
	27160215-1	Bus line

DIGITAL POWER SUPPLY CIRCUIT BOARD (NAPS-3387-1) – PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors	
Q971	2201444 or	2SD1408-Y or
	2201443	2SD1408-O
Q972	2201434 or	2SB1017-Y or
	2201433	2SB1017-O
Q973	2211255	2SC1815-GR
Q974	2211455	2SA1015-GR
Q975, Q976	2213335	2SK373-GR
	Diodes	
D971, D972	224651602 or	HZ16E-B2 or
	224151602 or	05AZ16Y or
	224451602	MTZ16B, Zener
	Capacitors	
C971, C972	354774719	470 μF, 63V, Elect.
C975, C976	354751019	100 μF, 25V, Elect.
C977, C978	354744709	47 μF, 16V, Elect.
	Resistors	
R971~R974	441724314	430Ω, 2W, Metal oxide film
	Jumper socket	
JL731	25050280	NSCT-3P108

NOTE [D]: ONLY 120V MODEL
[G]: ONLY 220V MODEL
[W]: ONLY 120V/220V MODEL
[X]: ONLY MILITARY MARKET MODEL
[A]: ONLY AUSTRALIAN MODEL
[B]: ONLY BRITISH MODEL